Griqualand (about forty-two miles to the north-west of the more famous group in the neighbourhood of Kimberley). In this specimen a rather large and irregularly shaped pyrope projects from one end of a fragment of blue ground: one small diamond is embedded in this pyrope, and five others either indent it or are in close contact. Fortunately the discoverer was the managing director of the company, Mr. G. Trubenbach, who appreciated its importance, and so kept a sharp look-out for anything remarkable which might turn up during the excavations. Accordingly he preserved specimens of certain boulders, sometimes over a foot in diameter, well rounded and just like stones from a torrent, which occasionally occurred in the blue ground at various depths down to 300 feet. Several of these contained garnets, being varieties of eclogite, but diabase was also obtained.[1] Some of these Mr. Trubenbach brought to London, and on the outer surface of one a small diamond was detected. The boulder was broken, and others were exposed. A fragment (rather less than a third) was sent to Sir W. Crookes, who entrusted it for examination to the writer, and to him Mr. Trubenbach afterwards sent other boulders, besides rock and mineral specimens, with the permission of the directors.

In addition to the boulder of diabase, which has no special interest beyond the fact of its occurrence, there are six boulders of eclogite (one perfect, the rest having been broken), all but one (which may have been four or five inches long) measuring a foot across, more or less. Three of these consist almost entirely of a garnet (pyrope) and an augite (chrome diopside), the former varying in size from a large pea downwards, and the other mineral corresponding. The pyrope is often surrounded, especially towards the exterior of the boulder, by a "kelyphite rim" consisting mainly of a brown mica. This and a few other minerals were present elsewhere, but in very small quantities. The remaining three boulders consisted of the same two constituents, with the addition of a considerable amount of a variety of bastite and a few flakes of brown mica. Of the first group of specimens two contain diamonds, the first-named having at least nine and another certainly one, perhaps a second. All are small, the largest being about ·15 inch in diameter. They are well-formed octahedra, with slightly stepped faces, perfectly colourless, with an excellent lustre. Evidently they are just as much an accidental constituent of the eclogite as a zircon might be of a granite or syenite.

This discovery leads to the following conclusions. As the diamond is found in boulders of eclogite, and these are truly water-worn, that rock is the birth-place, or at any rate one birth-place, of the diamond (for its occurrence in a more basic species, such as a peridotite, may be expected). Hence the diamond is not produced in the blue ground, but is present in it as a derivative from older rocks, in the same way as the olivine, the garnets, the various pyroxenes, &c. Moreover, the blue ground is a true clastic rock, and not a serpentinised peridotite of any kind, so that the name Kimberlite, proposed for it by Prof. Lewis, must disappear from that group. The rock is a volcanic breccia, though a rather peculiar one, for scoria has not yet been detected in it. Probably it was formed by explosions due to pent-up steam, the vents being driven through the upper part of the crystalline floor and the overlying sedimentaries. These never ejected lava, and were soon choked up with shattered material. Through this, in all probability, steam or heated water continued to be discharged for a considerable time, which accounts for the marked changes effected in the exterior of the larger fragments and in the more finely pulverised material of the matrix.

T. G. BONNEY.

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[1] The occurrence of boulders in the blue ground at De Beers Mine was asserted by Stelzner in 1893 (*Sitzungber. u. Abhandl. der Isis*, 1893, p. 71).

NOTES.

WE are informed that copies in bronze of the medal presented to Sir G. G. Stokes at his jubilee can now be obtained from Messrs. Macmillan and Bowes, Cambridge, price 15*s*. each.

AT the opening meeting of the new session of the Institution of Civil Engineers, on November 7, an address will be given by the president, Sir Douglas Fox, and the prizes and medals awarded by the Council will be presented.

A GOLD medal is offered by the Cercle industriel agricole et commercial, Milan, for the description of a method, or the construction of apparatus, which will assist in the prevention of accidents to artizans engaged in electrical work.

A CONVERSAZIONE of the Geologists' Association will be held in the library of University College on Friday, November 3. A number of pictures and objects of geological interest will be on view during the evening.

THE Allahabad *Pioneer Mail* (October 6) states that Mr. Douglas Freshfield has started from Darjeeling, with a party of friends and Alpine guides, to explore the glaciers and little-known passes of the Kanchenjunga range. The exact course to be pursued is probably unknown to the party themselves, who must be guided by circumstances; but any addition to the scanty and inaccurate information at present extant on the subject of the Himalayan giant will be welcome to geographers.

IT is stated that another British exploring expedition to Abyssinia has been arranged, and will leave England at once. The members are Mr. James J. Harrison, Mr. Powell Cotton, Mr. W. Fitzhugh Whitehouse (of Newport, Rhode Island) and Mr. A. E. Butter. Mr. Donald Clarke will go as surveyor and geographer, and a taxidermist will also accompany the party. The objects of the expedition are scientific and sporting, and it is expected that the journey will occupy about nine months.

THE thirty-eighth annual general meeting of the Yorkshire Naturalists' Union is to be held at Harrogate to-day, and an address upon the evolution of plants will be given by Mr. William West, the retiring president. The Union is a model of a well-organised local society, which not only serves to develop interest in science, but also assists in the extension of natural knowledge. The membership is not in any way commensurate with the importance of the work carried on, and we are glad to see that efforts are to be made during the forthcoming winter to bring the claims of the Union for support before the naturalists and the public of the County of York.

THE *British Central Africa Gazette*, published at Zomba, always contains several items of scientific interest, and the latest number received, dated August 24, is not deficient in this respect. We learn from this source that Mr. J. E. S. Moore has been taking soundings at the north end of Lake Nyasa. Off Ruarwe a depth of 418 fathoms was found, and off the higher parts of Livingstone Range bottom was reached at 210 fathoms.—Mr. Poulett Weatherley describes in a letter a difficult journey up the Luapula, and through its innumerable rapids. The Luela is regarded as the second most important tributary of the Luapula, but there is little to choose between the Luombwa, the Luela, the Mwyangashe and the Luongo, though the Luombwa is the largest and most delightful of the four.

REUTER'S correspondent with Major Gibbons' trans-African expedition reports from Lialui (Barotsiland), in a despatch dated August 5, that much valuable exploring work had been done by the members of the expedition. The routes traversed by the travellers since last January amount in the aggregate to 3500 miles, mostly through unknown or unexplored districts.

The plans of the party at the date of the despatch are reported to have been as follows:—At the end of this month Captains Quicke and Hamilton will travel east to the Kafukwe, while Major Gibbons will make a journey up the Zambesi with canoes to Nanakandundu, returning by river as far as the Kabompo confluence, whence he will make a line to the Kafukwe. Captain Hamilton will then travel down that river to its confluence with the Zambesi, where an aluminium boat awaits him, in which he will descend the river to Zumbo, and return home *via* the east coast. Major Gibbons with Captain Quicke will travel up the Kafukwe, and, after following the Zambesi from its source to Nanakandundu, will make for St. Paul de Loanda on the west coast. All three hope to reach the coast in December by their respective routes.

THE long-standing question as to the admittance of women into full fellowship of scientific societies was brought before a meeting of the Lady Warwick Agricultural Association for Women on Thursday last, and the following resolution, supported by a paper by Mrs. Farquharson, was adopted: "That it is desirable and important that duly qualified women should have the advantages of full fellowship in scientific and other learned societies, *e.g.* the Royal, the Linnean and the Royal Microscopical." The arguments in favour of and in opposition to this proposal have been stated so many times that most members of scientific societies are familiar with them. Six years ago the Council of the Royal Geographical Society elected several ladies as fellows, but their action was disapproved at two special meetings, and resolutions to the effect that it was inexpedient to admit ladies as ordinary fellows were carried by conclusive votes. Ladies are, however, admitted to the meetings of the Society, and papers are accepted from them. In the case of the Royal Astronomical Society, ladies are only admitted to the ordinary evening meetings by special invitation of the president, sanctioned by the Council, the invitations being issued at the commencement of each session. The time may of course come when women will be equally eligible with men for membership of the learned societies, but facts such as those cited show that there is distinct opposition to the admittance of women at present, and no sudden change of feeling can be expected, though individual cases of "duly qualified" women might be considered.

IN a review which appeared in NATURE of September 7 (p. 433), reference was made to the hair of a "Panyan woman," figured as a "Negrito type, India," in Prof. A. H. Keane's work on "Man, Past and Present." Mr. Thurston's original photograph, from which the illustration was reproduced, shows the hair of the woman as of a distinctly curly character, "which feature," the writer of the review remarked, "is unfortunately lost in Keane's reproduction." Prof. Keane writes to say that his picture is a facsimile of Mr. Thurston's photograph, and shows the curly hair portrayed in the original. In support of his case he has submitted the portrait and the reproduction to us, and we must confess our inability to distinguish any obvious difference between them. The writer of the notice maintains, however, that the hair is not quite the same in the two, and he unites with Prof. Keane in the hope that every one interested in the matter will compare the illustrations for themselves before accepting either view.

DR. C. LE NEVE FOSTER reports, in a Blue Book just issued ("Mines and Quarries: General Report and Statistics for 1898," part iii.), that the total value of all minerals raised in the United Kingdom in 1898 exceeded 77,000,000*l.*, being an increase of five millions compared with the previous year. The output of coal during the year exceeded 202 million tons, of which 36½ million tons were exported. This large export of coal induces Dr. Foster to call attention to the plain warning contained in Mr. T. Forster Brown's paper on "Our Coal Supplies" (*Journal* Society of Arts, 1899, p. 508), in which it is emphatically stated that in another fifty years the dearth of cheap coal will begin to be felt. Referring to this, Dr. Foster says: "We are already dependent upon foreign countries for much of our iron ore, and it will be an evil day when we feel the pinch of poverty in coal. The proper husbanding of the coal resources of the kingdom is therefore a question of national importance."

THE great success of the installations for the development of electricity by power obtained from Niagara Falls is naturally leading enterprising capitalists in many other parts of the world to consider similar projects. We learn, for instance, from the *Pioneer Mail* that within the last few months schemes have been ventilated for utilising the Nerbudda at the Marble Rocks for supplying power to the new gun-carriage factory to be erected near Jubbulpore. There is also a project for running the Kashmir railway by electricity, the power being taken from the Chenab. Then there is another plan for supplying electrical power to Murree, deriving the energy from the Jhelum, which runs within ten or twelve miles of that sanatorium. For Simla there are no less than two schemes for obtaining electrical power by hydraulic means: one from the Sutlej, and another from a proposed lake to be made in the nullah below the station. Assuming that the majority of these schemes are practical, the point which remains somewhat obscure for the present is whether the demand for electricity in any of the places named would be sufficiently great to make the undertaking a commercial success.

THE *Experiment Station Record* (No. 5) of the U.S. Department of Agriculture contains a description of the biological and dairy building recently completed by the New York State experiment station at Geneva. The building has been constructed and equipped by the State for the study of dairy problems, and especially those concerned with cheese-making. The changes which take place during the curing of cheese, and the conditions which influence them, are still so imperfectly understood that the work carried on in the new laboratories is sure to lead to valuable results. Arrangements are provided for studying the ripening process in all its phases; and a bacteriologist is attached to the staff.

A NUMBER of excellent photographs obtained with a telephoto lens, by Mr. D. L. Elmendorf, are reproduced in the current number of *Scribner's Magazine*. A telephoto attachment, consisting of a negative lens, with a rack and pinion mounting, was used upon an ordinary rectilinear lens to take the pictures. With this attachment eight inches from the plate, the image obtained was equal to that formed by an ordinary lens of twenty-four inches focus; while at twenty-four inches from the plate, this being the greatest extension of the camera employed, the combination was equivalent to a lens of sixty-four inches focus. Among the striking pictures which accompany Mr. Elmendorf's article are views of the Jungfrau, obtained at a distance of sixteen miles, and of the cone of Popocatepetl, Mexico, taken at a distance of thirty miles.

THE Pilot Chart of the North Atlantic Ocean for the current month contains some further interesting particulars respecting the track of the destructive West India hurricane of August 3–September 12. After leaving the American coast it at first moved eastward with increased velocity. During the week of August 24–30 it remained almost stationary in the mid-Atlantic, the centre of the disturbance shifting to the northward, from where it took an almost due easterly course to about longitude 20°, traversing the Azores on September 3; it then curved to the N.E. until it reached the vicinity of Brest on September 7, when it bent in a S.E. direction and reached the north of

Corsica on September 9. Whole gales were frequently encountered throughout the course of the storm across the Atlantic. Off the coast of Provence it caused strong N.W. gales and a rough sea on September 9–11. This hurricane can be traced over the North Atlantic for a period of thirty-six days, making it in length of life the most noteworthy storm ever reported to the Hydrographic Office in Washington.

A SUMMARY of divers and sundry views respecting the cause of formation of hail is given by Signor Pio Bettoni in the *Bolletino mensuale* of the Italian Meteorological Society. The great divergence of opinion on the subject seems to suggest that we have not made much advance towards arriving at a definite explanation of the phenomenon during the century which has elapsed since Volta published his well-known electrostatic theory. Of the views here enumerated some are modifications of Volta's theory, and attribute the formation of hail to electrostatic causes, others ascribe the phenomenon to whirlwinds (vortices), others, again, to refrigerating air currents, and even the more unconventional theories, according to which hailstones come to the earth from interplanetary space or their refrigeration is due to transmutation of caloric into electricity, are not without their advocates.

IN *Himmel und Erde* for September, Dr. E. Less, of the Berlin Meteorological Office, gives a very lucid account of the general circulation of the atmosphere. In the first half of this century our knowledge of weather changes was almost exclusively confined to climatological investigations, in which Prof. Dove, of Berlin, was the most prominent representative; he referred the origin of all winds to an interchange of the air between the equator and the poles. But the study of synoptic weather charts, from about the year 1860, showed that the explanation hitherto given of weather changes did not generally accord with observed facts, and that they were intimately connected with the existence of areas of high or low barometrical conditions. The author points out that while the behaviour of the great atmospherical currents is, generally speaking, capable of explanation, the relation between them and the smaller disturbances which occur in our latitudes leave many doubtful points to be cleared up. In fact, what part is played by the general and what by the local conditions in producing the different phases of weather is as yet but little understood. The explanation of these phenomena is one of the most important problems of meteorological research, the solution of which must be approached in various ways.

THE *Bulletin International* of the Cracow Academy contains a notice of a paper, by M. P. Rudski, on the theory of the physics of the earth. In it the author gives a mathematical investigation of the variation of latitude in an elastic spheroid covered with water, and investigates the earth's rigidity as deduced from the 430-day period of the variation. The values deduced depend on the assumed "effective density" of the earth. Taking for this density the values 2·2, 3·0, 4·0, 4·5 and 5·5, Rudski finds the corresponding values of the rigidity to be 567, 879, 1713, 2036 and 2681 times 10^9 C.G.S. units respectively, that of steel being 819×10^9. By neglecting the effects of the ocean, and taking for the effective density the value 5·5, the author finds $n = 1250 \times 10^9$.

WITH a view of contributing data towards the determination of the secular variations of the earth's magnetism, Dr. Emilio Oddone contributes to the *Rendiconti del R. Istituto Lombardo*, xxxii. 15, his determinations of the magnetic elements at Pavia for June 1898, which admit of comparison with the corresponding elements determined by him at the same spot about fifteen years ago. The present results are as follows: declination, 11° 48′ ± 2′; inclination, 61° 26′ ± 2′; intensity in C.G.S. units, horizontal, $0{\cdot}216_3 \pm 0{\cdot}001$; vertical, $0{\cdot}397_3$; total, $0{\cdot}452_4$. While the interval between the present and the previous determination is too short to allow of these observations being made the basis of a new determination of the secular variations of the earth's magnetism, the author remarks that the empiric formulæ for the inclination and horizontal intensity, when exterpolated for fifteen years, agree fairly well with the above-mentioned numbers, but the annual variation in late years comes out to be less than was to be inferred from past observations.

PROFS. ELSTER AND GEITEL, writing in *Wiedemann's Annalen*, 69, discuss the source of energy in Becquerel rays, and advance the theory that the rays may be due to changes of the molecular arrangement of the atoms of the radio-active substance in which these pass from an unstable to a stable configuration with expenditure of energy. In a second note, the same authors show that Becquerel rays experience no deviation from a magnetic field, but that such a field in certain circumstances decreases the electro-dispersive power of air that has been traversed by them.

IN a communication to *Wiedemann's Annalen*, 67, Herr K. Kahle describes at some length experiments with the silver voltameter and their applications to determine the electromotive force of normal elements. The object of the paper is to obtain the electromotive force of the Clark cell, previously determined by the author by means of Helmholtz's electro-dynamometer, independently from the electro-chemical equivalent of silver. The value now obtained for the ratio of the Clark at 15° to the cadmium at 20° is 1·40663. Herr Kahle infers the following results as correct to 2 in 10,000, viz. Clark, 15°: $1{\cdot}4328_5$; cadmium, 20°: $1{\cdot}0186_3$; and Clark, 0°: 1·4492 internal volts.

DR. FRANZ KERNTLER has published a paper on the unity of the absolute system of units in relation to electric and magnetic measurements, in which he proposes to supersede the present dual systems of electrostatic and electromagnetic units. According to Dr. Kerntler's system, quantity of electricity and quantity of magnetism are both measured by Coulomb's law in C.G.S. units, and are thus both of the same dimensions, being identical with the electrostatic and magnetic units respectively; but a current has two measures, which Dr. Kerntler designates as its "opulence" and its "fecundity." These, which represent its electromagnetic and electrostatic measurements in common parlance, are in the ratio of 1 to "*v*."

DR. F. J. ALLEN has contributed to the *Proceedings* of the Birmingham Natural History and Philosophical Society, xi. 1, an essay on the nature and origin of life. The author remarks that the most prominent and perhaps most fundamental phenomenon of life is what may be described as the energy traffic or the function of trading in energy. After briefly pointing out the differences between anabolism and catabolism, Dr. Allen advances the opinion that it is nitrogen which, in virtue of its variability, instability, and lability, plays the most important part in the phenomena of life, and he enunciates the law that every vital action involves the passage of oxygen either to or from nitrogen. In the section dealing with the origin of life, it is stated that life in its physical aspect is the culmination of that chemical instability in certain elements which has always kept them circulating at the earth's surface. Dr. Allen considers that existing conditions are favourable to the origination of primitive forms of vital processes at the present time, and the reason that such forms do not originate now is that the elements required for their development are seized and assimilated by the already developed organisms. In regard to the possible existence of life in other parts of the universe, the same conditions of instability which are peculiar to the group of elements nitrogen, oxygen, carbon, and hydrogen at ordinary temperatures on our earth's surface may exist in other groups of elements at widely different temperatures, giving rise in parts of the universe, even of the most diverse characters, to developments of life whose variety and magnificence are beyond the utmost reach of our imagination.

A PAPER, entitled "Wanted, Plant Doctors," is to be found in the current issue of the *Contemporary Review*, in which the importance of the subject of plant pathology is briefly dealt with. While giving credit to the workers at the British Museum, Kew, &c., for the attention they are paying to this branch of science, the writer of the paper shows how far behind America and Germany this country is in recognising the importance of the subject. He thinks, however, that this will not be always so; "a time must come when every agricultural district will have its plant doctor, and when specialists in animal parasites, cryptogamic botany, and bacteriology will be consulted in difficult and obscure cases, just as the help of Harley Street is called in by medical practitioners. The practice of plant medicine is in its infancy; but with increased competition in the growth of cultivated crops, the farmer cannot afford to neglect any help that he can get in keeping the plants under his care in as high a state of health as possible." "What better use," adds the writer, "can be found for a philanthropist's money than the founding of a school of practical plant pathology, for the investigation of the diseases which occur in Britain?"

IN the October number of the *Zoologist* the editor, Mr. W. L. Distant, continues his communication on mimicry. While referring only to a limited number of examples, he divides his subject primarily into demonstrated, suggested and disputed cases of mimicry; adding a section on purposeless mimicry, and a second devoted to active mimicry. Under the heading of suggested mimicry the curious resemblances between certain tree-shrews and squirrels, as well as that between the Cape hunting-dog and the spotted hyæna, are rightly included; but it seems a little curious to find the East African Guereza monkey, whose coat has been shown by Dr. J. W. Gregory to present such a remarkable resemblance to the pendent lichens of the trees on which the animal lives, included in the same category. Under the heading of purposeless mimicry are included cases like the resemblance of the bee-orchis to the insect from which it takes its name; while active mimicry denotes those instances where insects or other creatures take special measures to avail themselves of their resemblance to other objects.

THE same journal likewise contains a very suggestive paper by Mr. C. Oldham on the mode in which bats secure their insect prey. It has been observed that these animals, when walking, carry the tail curved downwards and forwards, so that the membrane connecting this organ with the hind legs forms a kind of pouch or bag. If a large insect be encountered the bat seizes it with a snatch, and slightly spreading its folded wings and pressing them on the ground in order to steady itself, brings its feet forwards so as to increase the capacity of the tail-pouch, into which, by bending its neck and thrusting its head beneath the body, it pushes the insect. Although the latter, especially if large, will often struggle violently, when once in the pouch from which it is subsequently extracted and devoured it but rarely escapes. It is assumed that the same method of capture is employed when on the wing; and a correspondent of the author, who has observed the long-eared bat picking moths off sallows, states that "the bat always hovers when taking off the moth, and bends up the tail so as to form a receptacle for the insect as it drops."

MR. G. C. WHIPPLE and Mr. D. D. Jackson reprint, from the *Journal* of the New England Water-works Association, a paper on *Asterionella formosa*, a diatom which sometimes appears in great quantities in reservoirs of drinking water, imparting to it a geranium-like or fishy odour, from the production of a substance analogous to the essential oils. Its development is seasonal, appearing chiefly in spring and autumn. Its growth is greatly favoured by strong light; and the most efficacious preventative appears to be the storage of the water in the dark.

THE Director of the Botanical Garden at Buitenzorg, Java, has issued the first number of a *Bulletin* of the Botanical Institute, containing a history of the Institute down to the present time, a plan of the buildings and of the gardens, with a list of the plants grown in them, and a list of the official publications. Besides the special laboratory for workers from other countries, the Institute contains laboratories for agricultural chemistry, for phyto-pathology, for agricultural zoology, for pharmacology, and for the study of the coffee and tobacco plants.

PROF. DAVID G. FAIRCHILD gives, in the *Botanical Gazette* for September, an interesting account of a visit to Payta, in Peru, reputed to be the driest spot on the face of the globe. Payta is situated about 5° S. of the equator on a coast which has risen 40 feet within historic times. The average interval between two showers is seven years; when Mr. Barbour Lathrop and Prof. Fairchild visited it in February, there had recently been rain lasting from 10 p.m. one day till noon the next day, the first for eight years. There are frequent sea-fogs. The flora consists of about nine species; of these seven are annuals, the seeds of which must have remained dormant in the ground for eight years. Notwithstanding the scarcity of rain, the natives subsist by the growth of the long-rooted Peruvian cotton, which is able to maintain itself without rain for seven years in the dried-up river-bed, and yields profitable crops of the coloured short staple cotton, which is used as an adulterant for wool.

THE Calendar, for the session 1899–1900, of the University College of North Wales has just been issued by J. E. Cornish, Manchester; and the University Correspondence College Press has published its London University Guide for the same period.

THE *Bulletin of Miscellaneous Information* (Botanical Department) for Trinidad, No. 20, July 1899) contains a report, by Mr. G. Massee, on the cacao-pod disease, in which he states that, in addition to the well-known *Phytophthora omnivora*, a second parasitic fungus, *Nectria Bainii*, sp. n., occurs on the diseased pods.

WE have received from the Purdue University Agricultural Experiment Station at Lafayette, Indiana, a parcel of reports (*Bulletins* Nos. 71–79) on various subjects of practical importance to agriculturists:—The San José and other scale insects; field experiments with wheat; skim milk as food for young growing chicken, &c.

PROF. ELMER GATES describes in the *Scientific American* a number of pictures he has obtained of the electric discharge, by placing a photographic plate between the two poles of a ten-plate electrostatic machine. The illustrations accompanying the article are of much the same character as those given by Lord Armstrong in his elaborate work on "Electric Movement in Air and Water," but they are on a smaller scale, and therefore less full of detail.

A NEW edition—the fourth—of "Our Secret Friends and Foes," by Prof. Percy Frankland, F.R.S., has been published by the S.P.C.K. The author has re-written the chapter which was added to the immediately preceding edition, and has added some of the latest results achieved in the study of bacterial poisons, such as that of bubonic plague, and of some other poisons of a non-bacterial origin.

MESSRS. LONGMANS AND CO. have issued a new edition of Prof. Lloyd Morgan's "Animal Biology." The book was originally published twelve years ago to meet the requirements of the Intermediate Science and Preliminary Scientific Examinations of the London University. The present edition has been revised, and some chapters re-written, to meet the requirements of the existing syllabus. Several illustrations now appear in the work for the first time.

NEW editions of two well-known books of chemistry (Ostwald's "Grundriss der Allgemeinen Chemie," and Lothar Meyer's "Outlines of Theoretical Chemistry," the latter translated by Profs. Bedson and Williams) have recently come to us from their publishers—Engelmann of Leipzig, and Longmans and Co The former is a third edition, and the latter a second, and an attempt has been made in each case to bring the work up to date.

REFERENCES to practically every article and work on geography published during the year 1896 will be found in the fifth volume of the "Bibliotheca Geographica," prepared by Dr. Otto Baschin for the Berlin Geographical Society, and just published by the firm of W. H. Kühl. A comprehensive classification of subjects is adopted, and it is easy to find the works published in any branch of geography in 1896. In adtion, there is a complete index of authors. Students of geography know the work so well that no comment upon its thoroughness is necessary here.

THE additions to the Zoological Society's Gardens during the past week include a Green Monkey (*Cercopithecus callitrichus*) from West Africa, presented by Mr. G. P. Kinahan; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. A. M. Burgess; a Gambian Pouched Rat (*Cricetomys gambianus*), a Nilotic Trionyx (*Trionyx truinguis*) from Sierra Leone, presented by Mr. Ernest E. Austen; a Red-footed Ground Squirrel (*Xerus erythropus*) from West Africa, presented by Mr. F. H. D. Negus; two Herring Gulls (*Larus argentatus*), British, presented by Mr. J. W. Edgar; a Melodious Jay Thrush (*Leucodioptron canorum*) from China, presented by Mrs. Currey; a Spoonbill (*Platalea leucorodia*), a Kestrel (*Tinnunculus alaudarius*), captured at sea, presented by Captain E. W. Burnett; a Green Turtle (*Chelone viridis*) from Ascension, presented by Mr. W. Hebden, C.E.; a Chameleon (*Chamaeleon vulgaris*) from North Africa, presented by Mr. F. G. Ward; two Serrated Terrapins (*Chrysemys scripta*) from North America, a Bennett's Cassowary (*Casuarius bennetti*) from New Britain, a White Goshawk (*Astur novae-hollandiae*), two Sacred Kingfishers (*Halcyon sancta*) from Australia, a Forsten's Lorikeet (*Trichoglossus forsteni*) from the Island of Sambawa, a Ring Ouzel (*Turdus torquatus*), British, deposited; a Crab-eating Raccoon (*Procyon cancrivorus*), two Short-eared Owls (*Asio brachyotus*) from South America, purchased.

OUR ASTRONOMICAL COLUMN.

HOLMES' COMET (1899 *d*).

Ephemeris for 12*h*. *Greenwich Mean Time.*

1899.	R.A. h. m. s.	Decl. ° ′ ″
Oct. 26	... 2 45 7·14 ...	+49 11 29·7
27	... 43 55·55 ...	13 2·6
28	... 42 43·32 ...	14 12·0
29	... 41 30·56 ...	14 58·0
30	... 40 17·40 ...	15 20·5
31	... 39 3·95 ...	15 19·6
Nov. 1	... 37 50·33 ...	14 55·4
2	... 2 36 36·67 ...	+49 14 8·0

NOVA SAGITTARII.—*Harvard College Observatory Circular*, No. 46, gives the details of the position of Nova Sagittarii, discovered in April 1898, as obtained from micrometric measurement of enlargements from the plates, taken with the 8-inch Bache and 11-inch Draper telescopes, on which the star was photographed. Prof. Pickering finds that the accuracy obtainable by this method is equal to that given by the best meridian circle observations. The mean position as determined is

$$\left.\begin{array}{l}\text{R.A.} = \quad 18\text{h. } 56\text{m. } 12{\cdot}83\text{s.}\\ \text{Decl.} = -\ 13^\circ\ 18'\ 12''{\cdot}98\end{array}\right\}(1900).$$

ORBIT OF EROS.—In the *Astronomische Nachrichten* (Bd. 150, No. 3597), Herr Hans Osten, of Bremen, discusses the numerous observations of the new minor planet now available, and gives the two following provisional sets of elements for the orbit :—

Epoch of Nodal Passage, 1898 *Oct.* 1·0. *Berlin Mean Time.*

	I.		II.
M =	238° 38′ 33″·627	...	238° 39′ 44″·636
ω =	137 9 24·77	...	177 39 21·05
☊ =	342 8 48·58	...	303 31 53·37
i =	30 42 32·105	...	10 49 33·99
ϕ =	12 52 17·14	...	12 52 18·33
μ =	2015″·57814	...	2015″·34326
log a =	0·1637380		

STRASSBURG OBSERVATORY.—The annual publication compiled under the supervision of Herr E. Becker, the director of the Imperial Observatory of the University of Strassburg, has recently been issued, containing the reductions of star observations made during the period 1882–1888, together with miscellaneous results to 1893. The observations made with the meridian circle, occupying 154 pages, are preceded by some twenty pages giving details of the determination of collimation, level, azimuth and other corrections. Following these are given the individual observations of the positions of 223 stars measured from 1882–1883, and of 1146 stars measured during the period 1884–1888. From these three catalogues are compiled, one of 254, one of 858, and one of 368 stars, the latter containing corrections from Epoch 1880. Three appendices deal with heliometer measures of the partial solar eclipses of 1890, 1891 and 1893, the determination of the form the pivots of the meridian circle of the observatory, and the compilation of precession tables (both annual and secular) respectively.

THE NERVE-WAVE (LA VIBRATION NERVEUSE).[1]

AS you told us, sir, two days ago in your admirable address, the century now drawing to an end is most honoured in the close union of men of science of all nations. If, owing to stupid prejudices and barbaric hate, nations are still separated by divisions which may lead them into fratricidal war, it falls to the men of science at least to set the example of concord, in order that by their teaching, based on reason, they may bring to all peace, sweet peace—the chimæra of the past, the hope of us all to-day, the reality of to-morrow. To this end nothing can be more effective than the great example of the British Association and the Association Française, who, within the space of a few days, are to meet twice as partners in their fertile work: to-morrow on English soil, in this hospitable town of Dover; five days later on the soil of France, on the shores you can see from here, where you will find the same courteous and cordial welcome as our countrymen will receive on this side.

Yet after these words of peace must come words of war—nay, its open declaration. Men of science have not the right to stay within the closed gates of their tower of ivory; it behoves them also, even at the cost of vain popularity, to wrestle and to wrestle unceasingly for justice; to form a grand international league, to turn the united forces of all generous minds against the common foe, the worst enemy of man: and this is ignorance. We must not value unduly the admirable conquests won by science in this century. Admirable as they are, they are yet nothing as compared to the great mystery beyond. Newton compared our science to that of a child, who should pick up a pebble on the

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[1] Evening Address delivered by Prof. Charles Richet on September 15, at the Dover Meeting of the British Association. Translated by Prof. Marcus Hartog.